UNITED STATES DISTRICT COURT
FOR THE WESTERN DISTRICT OF TEXAS
MIDLAND-ODESSA DIVISION

RESONANT SYSTEMS, INC., d/b/a RevelHMI, Plaintiff, v. APPLE INC., Defendant.	Case No. 7:23-cv-000077-ADA **JURY TRIAL DEMANDED**

JOINT CLAIM CONSTRUCTION STATEMENT

Plaintiff Resonant Systems, Inc. ("Plaintiff" or "Resonant") and Defendant Apple Inc. ("Defendant" or "Apple") respectfully submit this Joint Claim Construction Statement in anticipation of the claim construction hearing scheduled for May 31, 2024. The asserted patents are U.S. Patent Nos. 8,093,767 (the "'767 patent"), 8,860,337 (the "'337 patent"), 9,941,830 (the "'830 patent), and 11,152,882 (the "'882 patent"). The currently asserted claims are set forth below and the parties' agreed and disputed claim construction positions are shown in Attachment A, attached hereto.

- '767 patent – claims 1, 2, 3, 4, 5
- '337 patent – claims 2, 3
- '830 patent – claims 1, 2, 3, 4, 5, 6, 7, 8, 14, 15, 16, 17, 19, 20
- '882 patent – claims 1, 2, 3, 4, 5, 6, 10, 17, 19, 20

Dated: May 16, 2024

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CERTIFICATE OF SERVICE

I certify that this document is being served upon counsel of record for Defendant on May 16, 2024 via electronic service.

/s/ *Reza Mirzaie*

APPENDIX A

I. AGREED CONSTRUCTIONS

Claim Language	Agreed Construction
'767 patent, claim 1; '830 patent, claims 1, 19; '882 patent, claims 1, 10 *Preambles*: "linear resonant vibration module"; "vibration module"; "oscillating resonant module[s]"	Preamble is limiting
'767 patent, claim 1 "a driving component that drives the moveable component in each of two opposite directions"	Subject to 35 U.S.C. § 112(f) **Function**: driving the moveable component in each of two opposite directions **Structures**: coils 420, 514, 626, 1202, 1204, 1302, 1304, 1412, 1414, 1510 (also shown in Figs. 16–17); electromagnets shown in Figs. 10–11; and equivalents thereof
'337 patent, claim 2 "a driving component that drives the moveable component in each of two opposite directions within the housing"	Subject to 35 U.S.C. § 112(f) **Function**: driving the moveable component in each of two opposite directions within the housing **Structures**: coils 420, 514, 626, 1202, 1204, 1302, 1304, 1412, 1414, 1510 (also shown in Figs. 16–17); stator coils of Figs. 24A, 24B, 25; electromagnets shown in Figs. 10–11; and equivalents thereof
'830 patent, claims 1, 19, 20 "a driving component that drives the moveable component to oscillate within the housing"	Subject to 35 U.S.C. § 112(f) **Function**: driving the moveable component to oscillate within the housing **Structures**: coils 420, 514, 626, 1202, 1204, 1302, 1304, 1412, 1414, 1510 (also shown in Figs. 16–17); stator coils of Figs. 24A, 24B, 25; electromagnets shown in Figs. 10–11; and equivalents thereof

II. DISPUTED CONSTRUCTIONS: APPLE'S PROPOSED TERMS

A. Preambles

Claim Language	Resonant's Proposed Construction	Apple's Proposed Construction
'337 patent, claim 2 "linear vibration module" **'830 patent, claim 20** "vibration module"	Preamble is not limiting; no construction necessary; plain and ordinary meaning	Limiting

B. "Control Component …"

<table>
<tr><th>Claim Language</th><th>Resonant's Proposed Construction</th><th>Apple's Proposed Construction</th></tr>
<tr><td rowspan="3">'767 patent, claim 1

a control component that includes a microprocessor and that controls supply of power from the power supply to the driving component to cause the moveable component to linearly oscillate, the control component including, in addition to the microprocessor,

a control program, stored in one of a separated electronic memory or within the processor, that is executed by the microprocessor to control operation of the linear resonant vibration module, and</td><td>Plain and ordinary meaning; not subject to 35 U.S.C. § 112 ¶ 6

If subject to 35 U.S.C. § 112 ¶ 6, then:</td><td>Subject to 35 U.S.C. § 112(f)</td></tr>
<tr><td colspan="2">Agreed Function:
controlling supply of power from the power supply to the driving component to cause the movable component to linearly oscillate; controlling operation of the linear resonant vibration module; receiving output signals from sensors within the linear resonant vibration module during operation of the linear resonant vibration module; and adjusting one or more operational control outputs of the control component according to the received output signals from the sensors in order that subsequent operation of linear resonant vibration module produces desired outputs from the one or more sensors corresponding to one or more operational control parameters</td></tr>
<tr><td>Structure:
a microprocessor; a switch; electronic memory; a control program that, if an algorithm is required, performs an algorithm comprising the following steps: (a) receive</td><td>Structure:
a microprocessor; a switch that receives a directional signal d from the processor and that selects a corresponding direction of the two opposite directions in which the driving</td></tr>
</table>

Claim Language	Resonant's Proposed Construction	Apple's Proposed Construction
a switch that receives a directional signal d from the processor and that selects a corresponding direction of the two opposite directions in which the driving component drives the moveable component, the control component receiving output signals from sensors within the linear resonant vibration module during operation of the linear resonant vibration module and adjusting one or more operational control outputs of the control component according to the received output signals from the sensors in order that subsequent operation of linear resonant vibration module produces desired outputs from the one or more sensors corresponding to one or more operational control parameters	the value of an output signal; (b) compare that value to a different value, which could be a previous value; and/ (c) adjust one or more operational control outputs based on that comparison; and equivalents thereof *See, e.g.*, '767 patent at 5:15-48, 6:14-8:3, Figs. 5A-6, 7A-7C	component drives the moveable component; a control program, stored in one of a separated electronic memory or within the processor, that is executed by the microprocessor wherein the control program performs the algorithm shown in Figs. 7A–C and described at 6:15–8:3; and equivalents thereof
'337 patent, claim 2 a control component that controls supply of power from the power supply to the driving component to cause the moveable component to oscillate at a frequency and an	**No Dispute:** Subject to 35 U.S.C. § 112(f) **Agreed Function**: controlling supply of power from the power supply to the driving component to cause the moveable component to oscillate at a frequency and an amplitude specified by user input received from the user-input features; driving simultaneous oscillation of the movable component at two or more frequencies to generate complex vibration modes	

Claim Language	Resonant's Proposed Construction	Apple's Proposed Construction
amplitude specified by user input received from the user-input features, wherein the control component drives simultaneous oscillation of the moveable component at two or more frequencies to generate complex vibration modes.	**<u>Structure</u>:** microcontroller with internal or external memory; processor; CPU; microprocessor; and equivalents thereof [if an algorithm is required] Where the corresponding structure is a processor, CPU, or microprocessor, the processor / CPU / microprocessor is programmed with an algorithm comprising the following steps: (a) set the mode and strength to values representing selections made by user input to the user input features; (b) provide a corresponding output to the power supply so that the power supply provides a corresponding output to the driving component; and (c) drive simultaneous oscillation of the moveable component at two or more frequencies. *See, e.g.*, '337 patent at 5:43-6:10, 6:43-8:30, 11:43-12:5; Figs. 5A-6, 7A-7C, 13, 22A-23	**<u>Structure</u>**: the switches shown in Figures 5A–6 and described at 5:45–65, 6:2–8 with the processor/microprocessor/ microcontroller/CPU that performs the algorithm shown in Figures 7A–C and described at 6:43–8:30 and 13:3-41; and equivalents thereof
<u>'830 patent, claims 1 & 19</u> a control component that controls supply of power from the power supply to the driving component to cause the moveable component to oscillate at a frequency and an	**No Dispute:** Subject to 35 U.S.C. § 112(f) **<u>Agreed Function</u>**: controlling supply of power from the power supply to the driving component to cause the movable component to oscillate at a frequency and an amplitude specified by one or more stored values	

Claim Language	Resonant's Proposed Construction	Apple's Proposed Construction
amplitude specified by one or more stored values	**Structure:** oscillator circuit; (except as to claim 20); microcontroller with internal or external memory; processor; CPU; microprocessor; and equivalents thereof Where the corresponding structure is a processor, CPU, or microprocessor, the processor / CPU / microprocessor is programmed with an algorithm comprising the following steps: (a) set the mode and strength to default values or values representing selections made by user input to the user input features; and (b) provide a corresponding output to the power supply so that the power supply provides a corresponding output to the driving component. *See, e.g.*, '830 patent at 5:50-6:18, 6:52-8:40, 11:57-12:19; Figs. 5A-6, 7A-7C	**Structure**: the switches shown in Figures 5A–6 and described at 5:52–6:5, 6:9–16 and the processor/microprocessor/microcontroller/CPU that performs the algorithm shown in Figures 7A–C and described at 6:52–8:40; and equivalents thereof
'830 patent, claim 20 a control component that controls supply of power from the power supply to the driving component to cause the moveable component to oscillate at a frequency and an amplitude specified by one or more stored values,	**No Dispute:** Subject to 35 U.S.C. § 112(f)	
	Function: controlling supply of power from the power supply to the driving component to cause the movable component to oscillate at a frequency and an amplitude specified by one or more stored values	**Function**: controlling supply of power from the power supply to the driving component to cause the moveable component to oscillate at a frequency and an amplitude specified by one or more stored values; and driving simultaneous oscillation of the moveable

Claim Language	Resonant's Proposed Construction	Apple's Proposed Construction
wherein the control component drives simultaneous oscillation of the moveable component at two or more frequencies to generate complex vibration modes.	**Structure**: microcontroller with internal or external memory; processor; CPU; microprocessor; and equivalents thereof Where the corresponding structure is a processor, CPU, or microprocessor, the processor / CPU / microprocessor is programmed with an algorithm comprising the following steps: (a) set the mode and strength to default values or values representing selections made by user input to the user input features; and (b) provide a corresponding output to the power supply so that the power supply provides a corresponding output to the driving component. For claim 20, the algorithm comprises the following additional step: (c) drive simultaneous oscillation of the moveable component at two or more frequencies. *See, e.g.*, '830 patent at 5:50-6:18, 6:52-8:40, 11:57-12:19; Figs. 5A-6, 7A-7C	component at two or more frequencies to generate complex vibration modes **Structure:** the switches shown in Figures 5A–6 and described at 5:52–6:5, 6:9–16 and the processor/microprocessor/microcontroller/CPU that performs the algorithm shown in Figures 7A–C and described at 6:52–8:40 and 13:20–59; and equivalents thereof
'882 patent, claim 1 a control component that	**No Dispute:** Subject to 35 U.S.C. § 112(f) **Agreed Function**: receiving control signals input to the oscillating resonant module; receiving outputs from the one or more sensors; controlling oscillation of the mass to produce a vibration response	

<table>
<tr><th>Claim Language</th><th>Resonant's Proposed Construction</th><th>Apple's Proposed Construction</th></tr>
<tr><td rowspan="2">receives control signals input to the oscillating resonant module, receives outputs from the one or more sensors, and

controls oscillation of the mass to produce a vibration response according to the received control signals by generating, using one or more of the received sensor outputs, control outputs to an actuator that drives the mass to oscillate.</td><td colspan="2">according to the received control signals by generating, using one or more of the received sensor outputs, control outputs to an actuator that drives the mass to oscillate</td></tr>
<tr><td><u>Structure</u>:
oscillator circuit; microcontroller with internal or external memory; processor; CPU; microprocessor; and equivalents thereof

Where the corresponding structure is a processor, CPU, or microprocessor, the processor / CPU / microprocessor is programmed with an algorithm comprising the following steps: (a) receive a target frequency; (b) receive sensor outputs indicating (1) position of the mass, or (2) position and velocity of the mass; and (c) generate control outputs based on the target frequency and the current position and velocity of the mass

See, e.g., '882 patent at 31:19-32:23, Fig. 45</td><td><u>Structure</u>:
the processor/logic circuitry that performs the algorithm shown in Fig. 45 and described at 31:19–32:13; and equivalents thereof</td></tr>
<tr><td><u>'882 patent, claim 10</u>

a control component that

receives control signals input to the oscillating resonant module by the controller,</td><td colspan="2">No Dispute: Subject to 35 U.S.C. § 112(f)

<u>Agreed Function</u>:
receiving control signals input to the oscillating resonant module; receiving outputs from the one or more sensors; controlling oscillation of the mass to produce a vibration response according to the received control signals by generating, using one or more of the received sensor outputs, control outputs to an actuator that drives the mass to oscillate</td></tr>
<tr><td>receives outputs from the one or more sensors, and</td><td><u>Structure</u>:</td><td><u>Structure</u>:</td></tr>
</table>

Claim Language	Resonant's Proposed Construction	Apple's Proposed Construction
controls oscillation of the mass to produce a vibration response according to the received control signals by generating, using one or more of the received sensor outputs, control outputs to an actuator that drives the mass to oscillate.	oscillator circuit; microcontroller with internal or external memory; processor; CPU; microprocessor; and equivalents thereof Where the corresponding structure is a processor, CPU, or microprocessor, the processor / CPU / microprocessor is programmed with an algorithm comprising the following steps: (a) receive a target frequency; (b) receive sensor outputs indicating (1) position of the mass, or (2) position and velocity of the mass; and (c) generate control outputs based on the target frequency and the current position and velocity of the mass *See, e.g.*, '882 patent at 31:19-32:23, Fig. 45	the processor/logic circuitry that performs the algorithm shown in Fig. 45 and described at 31:19–32:13; and equivalents thereof

C. Indefiniteness

Claim Language	Resonant's Proposed Construction	Apple's Proposed Construction
'767 patent, claim 1; '830 patent, claim 4 "the one or more sensors"	No construction necessary; plain and ordinary meaning Alternatively, to the extent a construction is deemed necessary, "the sensors"	Indefinite
'767 patent, claim 1; '830 patent, claim 4 "desired outputs"	No construction necessary; plain and ordinary meaning	Indefinite
'830 patent, claim 4 "the one or more operational control outputs"	No construction necessary; plain and ordinary meaning	Indefinite
'830 patent, claim 4 "the received output signals"	No construction necessary; plain and ordinary meaning	Indefinite
'830 patent, claim 4 "the sensors"	No construction necessary; plain and ordinary meaning	Indefinite
'882 patent, claims 1, 3–6, 10 "the mass"	Plain and ordinary meaning, in which all recitations of "a mass" and "the mass" refer to the same mass	Indefinite
'882 patent, claims 10, 17, 19, 20 "the oscillating resonant module[s]" / "the one or more oscillating resonant module[s]"	No construction necessary; plain and ordinary meaning	Indefinite
'882 patent, claim 17 "the physical device"	No construction necessary; plain and ordinary meaning	Indefinite

III. DISPUTED CONSTRUCTIONS: RESONANT'S PROPOSED TERMS

Term, Patent and Claim	Resonant's Proposal	Apple's Proposal
'830 patent, claim 4 "claim 1"	"claim 3"	Plain and ordinary meaning
'882 patent, claim 17 "claim 1"	"claim 10"	Plain and ordinary meaning